

KADAR HISTAMIN DAN TESTOSTERON, RESPONS FISIOLOGIS DAN HISTOLOGIS IKAN KARNIVORA DIBERI PAKAN BERUPA DAGING IKAN TRANSGENIK

(Histamine and Testosterone Levels, Physiological and Histological Response of Carnivorous Fish Fed on Transgenic Fish Flesh)

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ABSTRAK

Penelitian ini dilakukan untuk menguji kadar histamin, testosteron dan potensi toksisitas daging ikan mas transgenik pada ikan karnivora sebagai model. Kadar histamin diukur menggunakan metode HPLC untuk menduga potensi alergisitas ikan transgenik. Daging dari 3 ekor ikan mas digabung dan dibuat 2 ulangan. Sampel diambil saat 6, 9 dan 12 jam setelah ikan mas diletakkan pada suhu ruang (24,0–25,6°C). Hasil analisis menunjukkan bahwa kadar histamin dalam daging ikan mas transgenik relatif sama dengan ikan mas nontransgenik. Dengan menggunakan metode ELISA, kadar testosteron dalam daging ikan mas transgenik juga relatif sama dengan ikan mas nontransgenik. Tiga jenis ikan model digunakan dalam uji toksisitas, yaitu ikan lele, ikan golosom dan udang galah. Ikan diberi pakan berupa potongan daging ikan mas transgenik (TG) dan nontransgenik (non-TG) dengan frekuensi 3 kali sehari, dan ikan dipelihara selama 14 hari. Hasil menunjukkan bahwa respons makan ikan uji yang diberi pakan berupa daging TG adalah sama dengan yang diberi daging non-TG. Pertambahan bobot tubuh, bobot hati, bobot limpa, kelangsungan hidup ikan uji, warna hati/limpa/empedu secara visual, dan pengamatan histologi hati ikan lele, histologi hepatopankreas udang galah, dan histologi limpa ikan lele juga sama antara diberi pakan berupa daging ikan TG dan non-TG. Dengan demikian dapat dikatakan bahwa efek ikan mas TG sama dengan ikan non-TG.

Kata kunci: Histamin, alergisitas, testosteron, toksisitas, ikan mas transgenik.

ABSTRACT

This study was conducted to measure histamine and testosterone levels, and potential toxicity of transgenic fish flesh on carnivorous fish as a model. Histamine level was measured using HPLC method to estimate the allergic potential of transgenic fish. Flesh from 3 fish were combined and duplicates. Fish samples were taken at the 6, 9 and 12 hours after exposing at room temperature (24,0 to 25,6 °C). The analysis showed that the histamine level in the transgenic fish flesh was relatively similar to the non-transgenic fish. By using the ELISA method, testosterone level in the transgenic fish flesh was also relatively similar to the non-transgenic fish. Three fish species used in toxicity testing models, namely African catfish, golosom and giant freshwater prawn. The fish were fed a piece of transgenic flesh (TG) and non-transgenic (non-TG) with a frequency of 3 times daily, and the fish were maintained for 14 days. The results indicated that the feeding response of fish model to TG flesh was the same as that of non-TG. Body weight gain, liver weight, spleen weight, fish survival, the visual color of liver/spleen/bile, and catfish liver histology, prawn hepatopankreas histology, and catfish spleen histology were also similar between fish fed TG and non-TG flesh. Thus, it can be concluded that the transgenic fish have the same effect with non-transgenic fish.

Keywords: Histamine, allergic, testosterone, toxicity, transgenic common carp.